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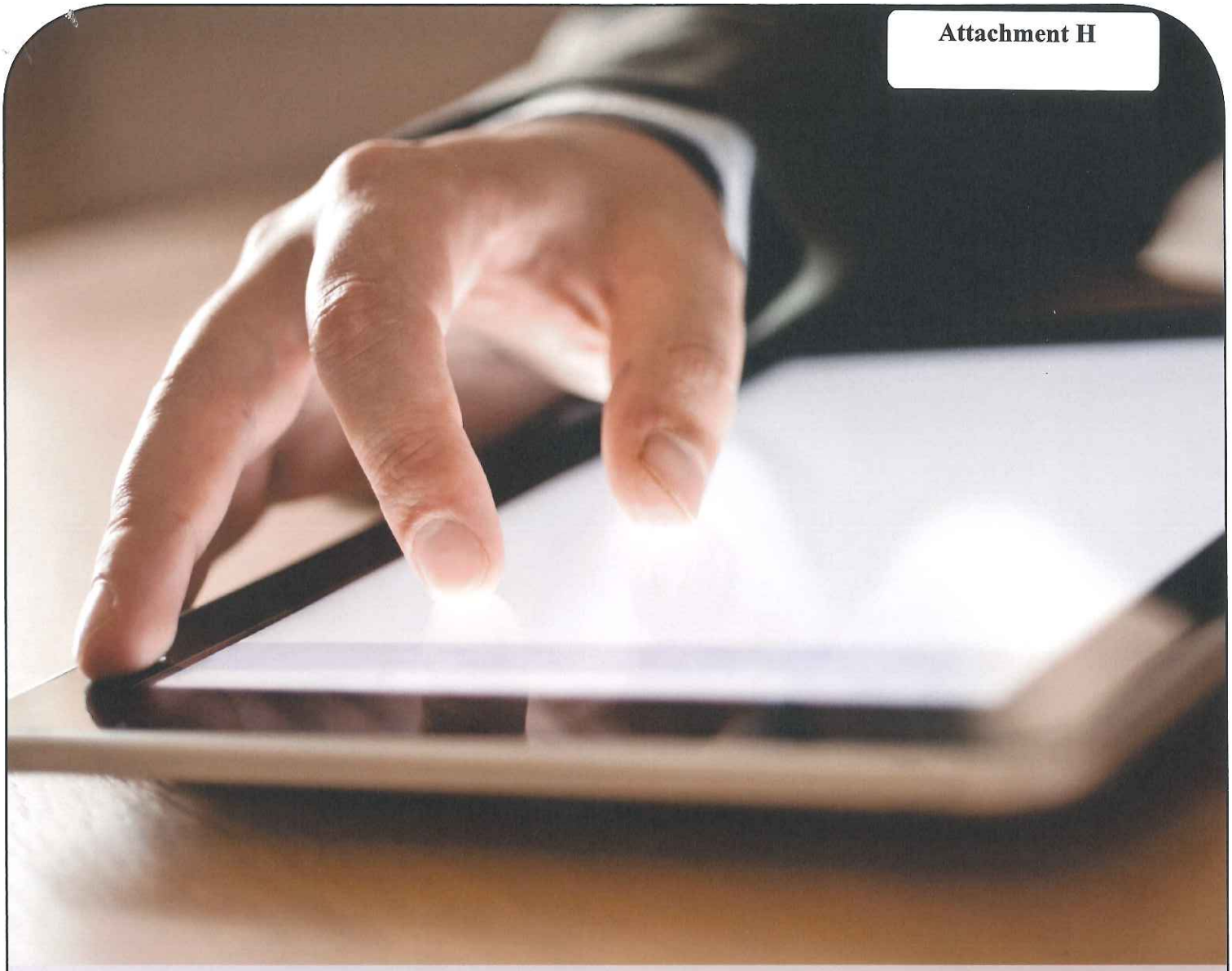

Transforming Colorado Government for Today and the Future

2012 REPORT

Governor's Office of Information Technology

DECEMBER 2012

Transforming Colorado Government for Today and the Future

December 2012

I am pleased to present the Governor's Office of Information Technology 2012 Report to the Governor, the President of the Senate and the Speaker of the House of Representatives.

Information technology is an integral part of any business, and state government is no different. While we do not always have a direct interface with the public, our work impacts all Coloradans. That is, we provide the technology that enables state agencies to provide services like unemployment insurance, food assistance, Medicaid, motor vehicle registrations, and more. IT is foundational to delivering these services to the public and the key to making state programs more efficient, effective, and elegant.

There is a high demand for new or expanded technology solutions that enable government to operate more, efficiently. OIT has made tremendous inroads in creating a consolidated, shared enterprise that will enable the state to optimize spending on IT projects and technology, improve enterprise service delivery, and allow for the rapid deployment of innovative IT solutions. We are also building a dynamic and flexible organization that will be able to meet new and evolving challenges and demands while maintaining current services and realizing enterprise efficiencies.

Managing IT through a business lens is our goal. Controlling spending and leveraging economies of scale is critical, while pursuing new and innovative ways to provide services cheaper, better, and faster. Through our purposeful actions, documented in our Playbook, OIT is advancing new ideas, aggressively pursuing collaborative partnerships, and advocating for and implementing innovative solutions that link IT investments to the state's goals while meeting unique agency priorities and business needs in a cost-effective, efficient manner. We also continue to identify and implement savings wherever possible and have achieved nearly $3.3 million in cost savings and cost avoidance in fiscal year 2011-12.

Although we continue to face many daunting challenges, I am excited about our future and the tremendous opportunities that lie ahead.

Sincerely,

Kristin D. Russell
Secretary of Technology and Chief Information Officer
State of Colorado
Governor's Office of Information Technology

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Foreword

The overwhelming bi-partisan passage of SB08-155 resulted in a considerable shift in how information and communication technology (ICT) services are delivered to Executive Branch agencies in Colorado state government. As a result of this legislation, which was codified in C.R.S. §24-37.5-101 et seq., all information technology (IT) functions, systems, and assets were consolidated from the 17 executive branch agencies into a single organization - the Governor's Office of Information Technology (OIT) - in July 2008.

The consolidation was much like a merger of 17 companies, bringing with it significant challenges including reorganizing nearly 900 employees into a single chain of command; implementing financial controls to ensure that purchases are managed in a coordinated fashion and implementing strict project management methodology and governance to fix ailing projects and prevent future projects from failure. But it also provided the unique opportunity to plan, enable, and implement truly transformative and lasting change in the state of Colorado. OIT took this historic opportunity to challenge the status quo and create an enterprise IT organization that is leaner and more effective in the delivery of a full range of technology solutions and services to a multitude of customers, which includes state agencies and local government entities.

Our value proposition is to enable the effective, efficient and elegant delivery of government services through trusted partnerships and technology. OIT's operational responsibility is vast and includes the development and support of enterprise and agency-specific (line of business) applications, projects, programs, and services, data centers, servers, mainframe operations, storage, operating systems, local area networks, as well as the Colorado State Network (CSN) and the public safety communications network (which includes the digital trunked and microwave radio systems). OIT is also responsible for information security across all three branches of state government. We monitor and analyze information on cyber threats and proactively manage vulnerabilities that present risk to the state's information systems or the critical information managed there within. This includes security risk management, security operations, regulatory compliance, and application security.

As an internal service provider, it is imperative that the nearly 26,000 state employees we call customers count on OIT to provide them with the IT support and tools they require to perform their day-to-day functions, including:

- ☐ Telecommunications Services (desk and mobile telephones)
- ☐ Email, Collaboration and Other Office Productivity Software
- ☐ Service Desk Support
- ☐ Internet Connectivity
- ☐ Desktop and Printing

In February 2011 Governor John Hickenlooper appointed Kristin D. Russell to lead OIT as the state's Chief Information Officer (CIO) and oversee all the information technology functions for the Executive Branch. Additionally, he appointed her as Colorado's Secretary of Technology and as such, Ms. Russell leads the state's IT economic development efforts and works in conjunction with the Office of Economic Development and International Trade (OEDIT) to promote Colorado as the ideal location for IT companies and technology-based workers. This Report covers both focus areas.

Section I: Becoming More Effective, Efficient and Elegant

Governor Hickenlooper charged his Cabinet with making government more effective, efficient and elegant. This simply means: we are getting done what needs to be done and are looking at outcomes to judge whether our programs are successful (effective); providing timely and cost-effective services and eliminating waste and duplication wherever we find it (efficient); and are delivering services in a way where the employee and public feel respected and elevated through the experience (elegant). OIT is actively engaging in activities that are aligned with this vision, while also supporting state agencies (our customers) in reaching their unified objective to provide services to Coloradans in the most efficient, effective, and elegant manner possible. OIT is tasked with advancing new ideas, aggressively pursuing collaborative partnerships, and advocating for and implementing innovative solutions that link IT investments to the state's goals while meeting agency priorities and business needs in a cost-effective manner. Through our purposeful actions, OIT is in a position to transform citizen engagement and trust in public service delivery, which is in direct alignment with the Executive Branch's vision and mission.

To enable the effective, efficient and elegant delivery of government services through trusted partnerships and technology.

FIGURE 1: OIT'S VALUE PROPOSITION

Strategic Planning

With a solid foundation established for consolidation, OIT revisited its strategic direction for the upcoming four years and put in place a strategic and operational "Playbook" that is subsequently reviewed and updated on an annual basis. The Playbook is our roadmap which defines our value proposition, top strategic priorities, and the specific key initiatives we want to accomplish in a particular fiscal year. The Playbook includes a current state assessment of six specific strategic priorities (Customer Success, People, Innovation, Service Excellence, Trusted Partnerships, and Information Security) and the future state that we ultimately want to achieve. After taking into account customer, employee, and partner perspectives, as well as the Governor's strategy and direction, OIT developed its first Playbook[1] and published it in July 2011.

FIGURE 2: OIT'S SIX PRIORITIES

[1] In July 2012, the FY13 Playbook was published with our initiatives for fiscal year 2012-13. A copy of both Playbooks can be found on our website at www.colorado.gov/oit.

To move us closer to our desired future state in each of our six priorities, we developed FY12 initiatives aimed at providing outstanding customer service, recruiting and hiring the best IT talent, providing innovative solutions from emerging technology, delivering services in a timely and effective manner, building and maintaining highly effective partnerships, and providing robust information security. Each of the initiatives has an established set of quarterly strategic targets, and regular Operations Reviews were established to review our progress and performance toward those targets.

FY12 Playbook Results

Quarterly operations reviews are held to track and measure our progress towards achieving Playbook initiative goals, adjusting and developing "get well" plans as necessary. At the close of the 2012 fiscal year, we conducted a year end review and of our 66 total initiatives:

- 47 (71%) were successfully completed;
- 11 (17%) were not completed and were either eliminated or are incorporated into the FY13 Playbook; and
- 8 (12%) were either merged with other existing initiatives or removed and being addressed in other projects.

Performance Measures – the OIT Balanced Scorecard

In addition to the targets defined in the FY12 Playbook, OIT developed a more tactical and operational set of performance measures that are integral to the day-to-day service delivery management and align with OIT's key initiatives and value proposition. This complete set of metrics is called the OIT Balanced Scorecard.

This internal Scorecard, which was implemented in July 2011, provides an executive summary aligned to OIT's strategic direction and robust metrics on financial performance, customer service and delivery, internal personnel

performance, and information security. In all, over 50 performance measures are managed[2] and maintained for each of these performance-based areas. Produced monthly, the Scorecard identifies trends, target metrics and actual performance metrics. The Scorecard has helped OIT achieve consistency of performance expectations against strategic priorities and has helped ensure organizational alignment to these core objectives across the state. In short, it tells us how we are doing and whether we are improving over time. In addition, the Scorecard provides a foundation for data-driven decision making and creates transparency and focus across the organization. OIT leadership regularly reports out on the status of these metrics across the Executive Branch and during legislative updates that are open to the general public.

Workforce

Realignment

Moving all Executive Branch IT staff into a single chain of command within OIT resulted in efficiencies and service enhancements that were unavailable under the previous siloed, agency-by-agency model. At the end of the day, IT is an economies of scale business where capitalization in specific subject-matter expertise makes good sense across the enterprise. In this new model, OIT successfully aligned employees along services and functions across the enterprise, creating a stronger and deeper bench. In September 2011, the organization was flattened to move senior management team closer to the day-to-day operations and to the employees delivering services, to improve career paths for our employees by providing more clarity around functional roles and responsibilities, and to enhance customer service and thus provide OIT with a more sustainable organizational structure for the future. We continue to fine-tune the functional structure to align with industry best practices and standards to ensure that customers receive the support and services they need while remaining agile in responding to non-standard situations that may arise.

Training

OIT's staff is entrusted with delivering critical services to our customers and Colorado's citizens and therefore it is important that they receive the technical training necessary to retool their individual skills as they move from supporting legacy systems and applications to current and evolving technologies. With shrinking training budgets, OIT has been creative in providing IT, project management, and business training with limited dollars. OIT offers monthly educational brown bags and has purchased subscriptions to Skillsoft and Corporate Executive Board (available to any Colorado state government employee) which provide valuable low cost training and development opportunities. OIT also facilitates a number of users groups that are open to state employees working in the areas of project management, information security, mainframe, application development, and enterprise architecture to share knowledge and best practices, and group facilitators frequently bring in guest presenters from both the public and private sectors. Additionally, OIT has maintained a comprehensive list of free training opportunities, which is updated and sent out quarterly to all OIT employees.

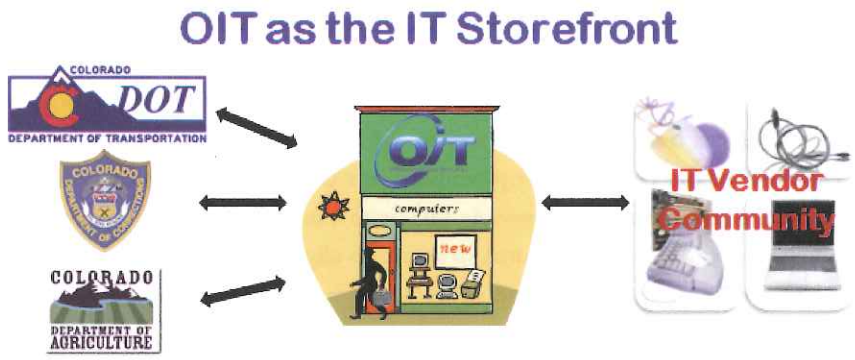
In January 2012, OIT initiated bi-monthly OIT Tech Forums in order to 1) provide training and demonstrations on new or emerging technologies, 2) share best practices among technical staff, and 3) seek out innovative solutions that are thought-provoking and forward-looking. Topics are aimed at showcasing strategic solutions using existing and emerging technologies that align with business needs and may deliver long-term value to the state and its residents. Speakers have come from OIT and/or external third-parties. Most Forums are open not

[2] Examples of the performance measures being managed are: Cost Savings and Avoidance, Number of Days to Complete a Contract, Number of Days to Process a Purchase Order, Mean Time to Total Resolution, System Availability, Project Health, and Statewide Security Awareness Training.

only to OIT employees but any interested IT professional in the public sector. The schedule of events is available on our website www.colorado.gov/oit/ea.

IT Storefront

OIT engaged in a LEAN[3] project to create a model that positioned OIT to serve as the "IT Storefront" for all IT-related procurements (e.g., hardware, software, maintenance, services) for all Executive Branch agencies. The IT Storefront is a life cycle management process for all IT assets and services. Goals and benefits of the IT Storefront include the opportunity to optimize financial decisions by leveraging statewide purchasing power; establishing common standards for hardware, software and applications; complying with required security architecture standards; implementing efficiencies in deployment and support of hardware, software and applications; and providing for improved adoption of project management, vendor management and asset management protocols. It is anticipated that the streamlining and centralization of the purchases will result in an estimated annual savings of $5 million while greatly improving how departments identify, purchase, and provision information technology goods and services.



OIT worked with the Department of Personnel & Administration (DPA) and finance and procurement officials from several departments on this strategic initiative and after many months of hard work, a LEAN-based statewide IT requisition and approval process was implemented in July 2012 and was integrated with the statewide e-procurement platform (COMPASS). The next phases of the project include incorporating the OIT project management office, implementing a vendor management office and feedback system and incorporating full asset management for all purchases into one configuration management database (CMDB) which will be utilized by the entire OIT organization. The goals of the IT Storefront include reducing procurement and provisioning timelines by approximately 30%; improving the quality of goods and services being procured; ensuring successful projects through consistent project management; evaluation and ranking of vendor performance; identification and management of the state's IT assets throughout their lifecycle; and to generate significant cost savings through consolidated purchasing.

OIT Tech Roadmap

OIT's Office of Enterprise Architecture published *The Compass: Enterprise Architecture 2011-2014*, which is our first ever OIT Tech Roadmap. The Roadmap defines the IT enterprise direction and standards for future technical solutions that will ensure services available to Coloradans are delivered efficiently, effectively, and elegantly. The following graphic represents the future enterprise architecture for Colorado state government:

[3] Lean is a systematic approach of continuous improvement to identify and eliminate waste to create savings. Lean provides the principles and tools to develop a culture that encourages and enhances employee creativity, innovation and problem-solving to use existing resources to create more value.

FIGURE 3: COLORADO'S FUTURE ENTERPRISE ARCHITECTURE

The framework defines the business, information, solution, and technology architectures based on the Federal Enterprise Architecture model. The Roadmap is accessible from OIT's website at www.colorado.gov/oit/ea. OIT's Chief Technology Office has also published a Cloud First strategy and our Mobility strategy is forthcoming in 2013.

Citizen Engagement Platform as a Service (CEPaaS)

In April 2012, Ms. Russell and the state's Chief Technology Officer, Sherri Hammons, published a white paper[4] on Citizen Engagement Platform as a Service or CEPaaS. The premise is that current customer management business models in the public sector are immature, reactive and single-transaction oriented, meaning that technology solutions for citizen services are developed in isolation within each agency. This makes it difficult to link customer information across the agencies and results in duplication and redundant creation of customer information and functions which prevents cross-agency analytics for proactive and service-oriented engagement with citizens. This current model is costly to implement, manage and maintain. The concept of CEPaaS is that through the use of shared, standard/off the shelf tools, state governments will be able to leverage common functions (i.e., rules engine, help desk, client correspondence) across multiple services. For example, if a citizen states that their preferred method of communication is email, then that preference is recorded across all the agencies the citizen is engaged with rather than having to make that request known to each agency independently.

[4] Accessible on OIT's website at http://www.colorado.gov/cs/Satellite/OIT-Main/CBON/1251575408707.

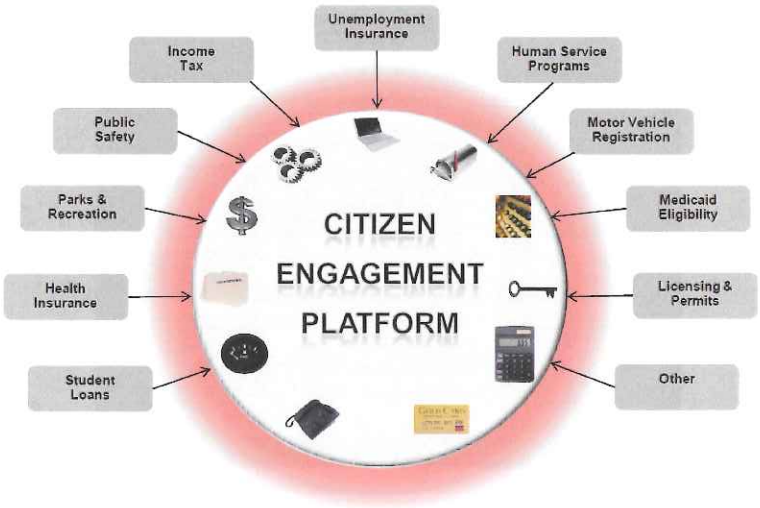


FIGURE 4: CEPAAS

To move towards this new model, OIT will be looking to the private sector to share their expertise, innovations and best practices for streamlining service delivery and support in a way that makes more efficient use of public dollars.

Information Security

In 2010 OIT implemented the Colorado Information Security Program (CISP), a comprehensive information security strategy which is safeguarding state systems from hackers, spam and phishing attacks. Thousands of attempts on the state IT environment are identified and repelled on a daily basis[5], and protecting the privacy of state and citizen data is a key priority for OIT.

Malicious software (i.e., viruses, Trojans, worms, etc.), human social engineering attacks, hackers, and loss and theft of mobile computing devices are a major source of information security incidents both nationally and in Colorado and capture significant media attention. However, statistics show that organizations are often at greatest risk from the inside and not from external sources. Employees unintentionally make the environment more vulnerable simply through a lack of knowledge that security is everyone's responsibility and that they can take simple steps to protect state resources and data. To mitigate the potential of such vulnerabilities and threats, OIT's Office of Information Security (OIS) has mandated that all state employees annually complete training on how to better protect systems and data. Nearly 100% of all Executive Branch employees completed the 2011 information security training, and the 2012 training is already in progress. In addition, the State of Colorado is a member of the Multi-State Information Sharing & Analysis Center (MS-ISAC). Through MS-ISAC, Colorado shares cyber security information with federal, state, and local government partners. MS-ISAC provides Colorado with valuable, real time cyber security intelligence and access to subject matter experts to assist in improving Colorado's information security.

In October 2011, the Center for Digital Government honored Colorado as the winner of its very first annual Cybersecurity Leadership and Innovation Award. The award highlights our state's early adoption of technology and implementation of processes to mitigate risks and combat security breaches. OIT was recognized for becoming a best practice leader by educating employees, employing processes, and utilizing technology to keep the confidential information of Coloradans secure.

[5] In fiscal year 2011-12, 85% of the more than 275,000,000 incoming messages we blocked.

The first two phases of the Enterprise Endpoint Security project was completed in September 2011. The conversion of 28,166 endpoints in the Executive Branch to single, standard software has resulted in an approximate cost savings of $500,000 in licensing costs alone, not to mention the enablement of a more secure solution. The project has connected endpoints from 20 separate agency infrastructures to a central management server, allowing OIT to centrally manage antivirus and encryption with a smaller central team. This paves the way for other important infrastructure consolidation and enterprise-wide projects.

Additionally, through the OIS, the Chief Information Security Officer implemented the Agency Vulnerability Management Program (AVMP). AVMP is a proactive statewide security scanning program intended to ensure that current security issues within agency environments are identified, evaluated using a risk management approach, and dealt with in a cost-effective and efficient manner. Colorado is using C-RISC as the open source portal to record, track, and measure all findings and security issues for follow up, remediation and incident response management. This program has already resulted in reducing high risk vulnerabilities in agency environments by 35%.

Project Management

In the spring of 2012, OIT's Enterprise Portfolio Project Management Office (EPPMO) adopted VAL IT. VAL IT is a methodology created by the ISACA IT Governance Committee and is one of the most effective ways in the market to demonstrate the value IT brings to the business. It increases profitability/cost reductions by helping facilitate the selection of the right investments for the greatest return. Some of the benefits of this set of processes and guidelines include but are not limited to: increased likelihood of success when executing selected investments; reduced cost and value leakage; reduced risks of failure; and fewer unexpected outcomes associated with IT cost and delivery.

Legacy System Modernization and Steps to Sustainability

The State of Colorado remains hindered by aging legacy information technology systems, many of which provide mission-critical functions and often serve the state's most vulnerable populations. Their outdated technologies limit OIT's ability to innovate and work with new technologies, to quickly implement state and federal legislative mandates, and to keep pace with changing policies and best practices to better serve constituents. Further, OIT continues to lose critical personnel to retirement, and with that comes the loss of institutional knowledge and key skills necessary for maintaining these legacy systems -- skills in which the next generation of IT workers is not trained. OIT is focused on stabilizing and/or replacing aging legacy systems and ensuring the sustainability of new systems going forward. Steps OIT have taken include:

Operational Risk Assessment

OIT supports and manages more than 900 different applications and IT services across the state, 133 of which have been deemed as mission critical and essential. In late 2011, OIT embarked on a Playbook initiative to assess these systems based on operational risk, business criticality and security risk across the enterprise. The applications were assessed and individually scored across six different risk factors (filters) and 99 attributes and an overall ranking was also determined. It is important to note that risk does not necessarily mean that an application is broken or not working properly but rather indicates the criticality of the application when looking at it through the different filters and allows us to make informed decisions on where to best allocate limited resources. This initiative is the first of its kind, providing OIT with essential, quantitative data on the status of mission critical systems statewide. With this critical data, we are positioned to better evaluate the state of these systems and make strategic decisions on allocating our limited resources and funds to those systems with the greatest risk. It will also allow OIT to determine which systems could be shored up or modernized with newer technologies such as cloud computing (i.e., X-as-a-Service) and shared services models while also providing

opportunities to consolidate duplicative systems into enterprise systems and eliminate outdated systems altogether.

Building Sustainability Upfront

Building sustainability up front into the plans and budgets for new IT systems and ensuring that all the components are in place not only for successful system implementation, but also for ongoing maintenance and support of the system and eventual system replacement is another key priority for OIT and the state. This "Total Cost of Ownership" approach includes incorporating security, project management, independent verification and validation (IV&V), business continuity, disaster recovery, ongoing support, and end-of-life replacement as necessary components of planning and budgeting for IT projects -- all of which are key to success and sustainability.

During the 2012 legislative session, OIT spearheaded the passage of HB12-1288, the Administration of IT Projects in State Government legislation, that will ensure that the state takes a smarter and more sustainable approach to IT system implementation and that IT project plans and budgets contain all the necessary components, such as Total Cost of Ownership, ongoing maintenance and disaster recovery for long-term system success and eventual replacement. The oversight of the strategic alignment is also part of the stage-gate process. Significant savings will occur from implementing these steps upfront as we enable collaboration around the state to increase usability of components, eliminate system duplication, and contribute to the approval of a stronger portfolio of projects. Financial guidelines were created and provided to help teams calculate Total Cost of Ownership and create more detailed planning budgets. Different internal training opportunities are being created by OIT's EPPMO supporting the "train the trainer" concept to expand knowledge around Portfolio Management, Program Management, and Project Management best practices.

Case-in-Point: the Colorado Financial Reporting System (COFRS)

COFRS is the state's 20-year old accounting system which records and processes approximately $70 billion in revenue and expenditure transactions on an annual basis. It is based on aging technology, including 1.7 million lines of complex programming code, the majority of which was written more than 20 years ago. As a result of the highly customized nature of the code and age of the system, the state has been unable to enter into a maintenance contract with the original vendor and the internal staff possessing the knowledge to support the system will all be eligible for retirement by 2014. Additionally, it is becoming increasingly costly to maintain the system and it presents a significant risk to the state should a partial or complete failure occur.

OIT, the Department of Personnel & Administration and the Office of State Planning and Budgeting worked collaboratively to secure an unprecedented investment to modernize COFRS. The result was a legislatively approved Capital Construction appropriation of ~$90 million over a ten-year period. These resources will not only reduce major operational risks and costs but also significantly improve financial reporting, controls, and forecasting capabilities across the state.

Section II: IT Economic Development

In addition to overseeing the overall information systems function statewide, Governor Hickenlooper restructured the CIO role to include the title of "Secretary of Technology." This role was created to provide specific industry focus on attracting, growing and retaining information technology (IT) jobs and businesses in Colorado. The Secretary of Technology builds economic development opportunities for IT businesses by promoting Colorado as a headquarters location for new and existing technology companies and attracting technology companies of all sizes to relocate to or expand within Colorado.

Through private and public partnership, Colorado will be recognized as a nucleus for innovation, technology, and economic growth – the "Silicon Mountain of the IT Community."

Colorado has a prime opportunity with regard to attracting, growing, and retaining IT businesses in Colorado. The Colorado technology industry is already home to more than 5,500 software, hardware, IT services, storage, geospatial intelligence, and related technology companies that employ more than 55,000 people for a total annual payroll of more than $5 billion[6]; this does not even include the thousands of IT jobs in the non-IT industries, such as financial services or health care. Additionally, Colorado's dry climate, clean power grid and low risk for natural disasters make it an ideal location for data centers. Lastly, Colorado has one of the most educated and healthiest workforce in the country with exceptionally low turnover rates. OIT works closely with the Office of Economic Development and International Trade (OEDIT) to ensure we are in alignment with the overall economic development strategy for Colorado, the Colorado Blueprint, and the Statewide Key Industry Network Strategy.

A strong commitment to job creation has been at the focus of the state's strategy and has been a key objective for OIT. Over the past year, approximately 7,500 new IT/technology jobs were announced from a compilation of over 40 companies. OIT and OEDIT leadership in partnership with the IT Economic Development Advisory Council (ITEDAC) have been involved in major activities to recruit and attract companies to Colorado and have been successful in attracting companies such as DaVita, Arrow Electronics, Hitachi Data Systems, and the U.S. Patent and Trademark Office. The ITEDAC, a council of public and private community leaders, is an executive group of trusted advisors who provide feedback on proposed economic development strategies, IT ideas and initiatives and brainstorm job creation solutions. Their focus is on business development. As part of this effort, OIT coordinates economic development trips to other states to meet with key IT business leaders to assess how Colorado could be more attractive for these businesses and encourage them to consider Colorado when they have opportunities for growth and expansion.

In conjunction with OEDIT and the Colorado Technology Association (CTA), OIT assembled a Technology Key Industry Network (KIN) Steering Committee and Tactical Team with representation from the technology industry, academia, state and federal government, nonprofit associations, and others to develop a business plan for the technology industry in Colorado. The kickoffs of the Technology KIN Steering Committee and Tactical Team were held on February 7 and 8, 2012, respectively; participants included 15 C-Level Leaders from the technology industry as well as members from the ITEDAC, OIT, OEDIT and CTA. This group addressed the major challenges and opportunities facing technology as an industry in Colorado, with a special focus on the six core objectives from the Colorado Blueprint. They identified specific initiatives for each of the six areas. CTA is now developing leadership

[6] Source: CSIA 2010 Industry Report

teams to carry out the implementation of those initiatives. Additionally, through efforts with the Colorado Innovation Network[7] (COIN), OIT has been instrumental in helping to connect and convene new IT entrepreneurs, higher education, federal laboratories and the public sector across Colorado.

Broadband

Another focal point of our IT economic development effort is the expansion of broadband deployment and adoption in un-served and underserved areas of the state. Broadband has become a vital infrastructure in this 21st century society and economy. The availability of broadband internet access in rural areas is critical to economic development, provides widespread access to essential services (like health care and education), facilitates the delivery of government services, and promotes civic engagement. Consequently, it is important that all parts of the state enjoy access to broadband and that citizens are making the best use of this technology.

Vision: *All Coloradans have access to abundant, redundant and affordable broadband service.*

Mission: *To support and expand an environment that enables the development of a cost effective, sustainable, high-speed, scalable broadband network and a digital literacy program that fosters personal, business, educational and public development.*

The regional bottom-up reports – which helped inform the Colorado Blueprint – identified many communities struggling with their current levels of high-speed broadband, lack of redundancy, and middle and last mile inadequacies. These include the San Luis Valley, rural northwest Colorado, the southwest and southeast corners of the state, and specific counties. A lack of adequate broadband infrastructure in these areas is:

- Impacting business development, growth, and diversity.
- Limiting their ability to be competitors in the global market.
- Reducing access to critical government services, which are increasingly moving online, as well as to distance learning opportunities, critical health care services, and other areas.

To address these issues, OIT established the Colorado Broadband Knights of the Roundtable (a collaborative group of local, regional, and state representatives) to develop a comprehensive statewide broadband strategy with five key priorities. Committees have been formed to address each priority.

1. **Coordinate and Collaborate on Broadband Activities**: This committee is promoting coordination and collaboration among the various groups engaged in broadband efforts across the state. The Colorado Broadband Knights of the Roundtable has been established to promote coordination and collaboration among the organizations that are leading key broadband development and adoption activities in Colorado. As the Roundtable has grown, this group of community and government broadband leaders has developed an overall framework and strategy for the state's broadband plan.
2. **Engage Local Communities:** This committee is focused on engaging and empowering local communities through the establishment of local technology planning teams in some of the highest need areas. These teams outreach to and coordinate with local groups, broadband providers, and other potential stakeholders to

[7] See Appendix C for additional information about COIN.

promote broadband adoption and enhance broadband consumer information. They are charged with addressing gaps in broadband deployment and adoption and aggregating broadband demand to incent private-sector build out in areas historically perceived to offer little return on investment. There are now 17 teams across the state.

3. **Leverage Funding Opportunities**: OIT is leveraging its $5.4 million broadband grant from the federal government to map broadband coverage across Colorado, conduct community-based outreach to identify local solutions to broadband issues, and create a statewide task force to increase interactive online learning opportunities for K-12 public schools. These efforts are foundational to increasing broadband deployment and usage across Colorado. This committee is also focused on planning for sustainability of broadband infrastructure projects.
4. **Evaluate/Support Critical Broadband Policy:** This committee is evaluating the policies and practices that impact broadband access. They are looking to remove barriers to broadband development and identify policies necessary to enable the Colorado statewide broadband mission.
5. **Achieve Digital Literacy:** Digital literacy and adoption are key to leveraging the broadband infrastructure and to support a foundation for the economic development of Colorado. This committee is identifying a network of resources that are available around digital literacy and broadband adoption and also planning a public awareness campaign.

Distance Learning Grant Project

The "Capacity Building – Distance Learning Grant Project" is part of Colorado's ARRA-funded Broadband Data Development program. The project will provide centralized coordination and increased course offering capacity to P-20 (pre-school to post-secondary/higher education) interactive video distance learning sites and content providers statewide. The grant allowed us to add 12 new interactive video distance learning sites - two 'proof of concept' and ten 'pilot' sites – for use in the 2012-2013 school year. The project will also fund new course content, distance learning training programs, and professional development for teachers.

In January 2013, a statewide scheduling/clearinghouse application to facilitate statewide networking of educational resources will be implemented. This application will provide a full array of registration and course delivery supports for interactive video distance learning in Colorado; it is anticipated that through this collaborative environment, the quantity of content and services will grow sharply.

The project is directed by the Colorado Distance Learning Task Force, which was established by OIT. This group is made up of Boards of Cooperative Educational Services (BOCES) executive directors and staff members, and representatives of content providers such as the Denver Museum of Nature and Science, special service providers such as Colorado School for the Deaf and Blind, and post-secondary providers such as the University of Colorado-Colorado Springs (UCCS).

Section III: Key IT Initiatives

Colorado Benefits Management System (CBMS)

Tremendous progress was made to modernize and improve the chronically troubled CBMS and restore public trust in Colorado's ability to deliver accurate and timely public assistance to eligible Coloradans. In the summer and fall of 2011, the State CIO and the Chief Technology Officer made several side-by-side visits with counties across Colorado to view firsthand the issues with the system and what they observed helped not only to inform our strategy but demonstrate the commitment OIT has to the end users of the system.

The State CIO also formed an Executive Steering Committee (ESC) that includes executive representation from Governor's Office, OIT, the Colorado Department of Human Services (CDHS), the Colorado Department of Health Care Policy and Financing (HCPF), the Colorado Human Services Directors Association (CHSDA) and Colorado Counties Inc. (CCI) and that has been meeting biweekly since inception. The ESC approved a comprehensive *18 Month Work Plan* to stabilize, upgrade, modernize and increase the reliability of the system as well as improve the end user experience. To achieve our goal of a system with greater integration, speed, efficacy and accuracy, we are using all the tools at our disposal including leveraging federal funds to the greatest extent possible.

In April 2012, OIT successfully completed the largest modernization effort since the initial implementation of CBMS in 2004 by moving to a full web-based service platform. With a web client deployed to all 64 counties, system performance improved by 30%, transaction time was decreased and now over 80% of all transactions are completed in less than 4 seconds. The system is also now easier to use and navigate. Additionally, in the spring of 2012, the state legislature authorized an additional $22 million for several modernization projects, including enhancing the award-winning Program Eligibility Application Kit (PEAK) to allow real-time, on-line eligibility determinations to minimize workload at the county level. A renewed emphasis on communications with the end-user community has also been successfully initiated and launched and their input is well represented in the current governance structure of CBMS.

Colorado Information Marketplace (CIM)

Historically, data sharing within Colorado State Government has been siloed, prone to misinterpretation and inconsistent. Over the past few years, legislation has been passed to improve data sharing, and OIT's data strategy has stemmed primarily from two pieces of legislation – House Bill 08-1364 and House Bill 09-1285. In the fall of 2011, OIT launched a major initiative called the Colorado Information Marketplace (CIM) to provide the architectural framework for data exchanges by applying consistency of data standards and governance for privacy and security while improving data transparency. CIM encompasses three components: data and information governance, the publishing of information for public consumption and information linking across any contributing entity. CIM is the basis for two exciting projects – RISE and data.colorado.gov.

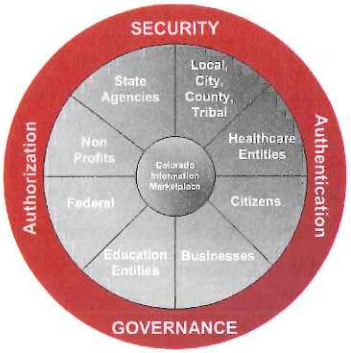


FIGURE 5: DATA SHARING FRAMEWORK

RISE – Relevant Information to Strengthen Education

As part of an effort to share data better, OIT and the Colorado Department of Education are implementing the Relevant Information to Strengthen Education (RISE) system to provide secure information about students, educators, and schools to support student success from preschool to workforce readiness. RISE was made possible by the Statewide Longitudinal Data Systems (SLDS) Grant Program, as authorized by the Educational Technical Assistance Act of 2002 Title II of the statute that created the Institute of Education Services (IES). The program is designed to aid state education agencies in developing and implementing systems intended to enhance

the ability of states to efficiently and accurately manage, analyze, and use education data. RISE will help states, districts, schools, and teachers make data-driven decisions to improve student learning, as well as facilitate research to increase student achievement and close achievement gaps.

OIT created the system that links data from six disparate agencies and allowing authorized personnel to securely view and share the data. In this initial phase, the Colorado Departments of Education, Higher Education and Human Services are the first to use the linked data to gain a better understanding of individual student needs, inform teacher preparation programs, and strengthen the educational system in Colorado. The Departments of Labor & Employment, Corrections, and Public Safety will be the next agencies to be linked as we continue with this exciting initiative to improve government services and policymaking through cross-agency data sharing.

Data.Colorado.Gov

In June 2012, the Colorado Information Marketplace at data.colorado.gov was launched. This comprehensive data sharing website is designed to:

- Provide public data in one easily accessible site.
- Increase government transparency of public information.
- Reduce research efforts and time through using customizable data searches and interactive online resources at a one stop shop location.
- Enable economic development by providing entrepreneurs the opportunities to develop mobile and web applications.
- Encourage user feedback and crowd sourcing for development of the site and requesting of new dataset offerings.

At data.colorado.gov, users can locate a wide variety of public datasets including a common directory for all state and local government agencies, locations of healthcare service providers, and access to a comparison of Colorado's schools, to name just a few. The data mining function increases government transparency and provides critical information that can easily be searched, sorted, graphed and downloaded.

Benefits of this one-stop shop for public data extend to state agencies and Coloradans alike. Amongst other advantages, this easy-to-use portal gives Coloradans access to information that was either previously unavailable or difficult to find, as well as the ability to suggest or request specific datasets. State agencies and other public sector entities are able to post public data sets for consumption. Additionally, state agencies and policymakers will have access to new and correlated information that will transform the decision making process through better use of analytics and reporting. Improvements to education, healthcare, and child welfare are just some of the ways CIM creates a positive societal impact. Since CIM launched in June 2012, there have been more than 64,000 page views and 96 datasets published.

Colorado State Network (CSN)

In June 2011, OIT entered into a managed service contract to upgrade and improve the state's aging wide area network which touches all 64 counties and connects nearly 100 public-sector entities statewide. The Colorado State Network (CSN) provides the state with more modern technology and bandwidth and is more reliable, secure and sustainable than its predecessor, the Multi-Use Network (MNT). As part of the CSN project, the Judicial Branch was able to leverage the negotiated CSN pricing and has already saved $153,000 this year and expects to see an annual minimum savings of $230,000.

The table below summarizes the similarities and differences between the MNT and CSN and highlights the improvements the State of Colorado will experience with the new network:

Network Service Component	Multi-Use Network (MNT)	Colorado State Network (CSN)
Footprint in all 64 counties	☑	☑
Over 3,000 endpoints	☑	☑
Public-private partnership	☑	☑
Available to all public-sector entities (e.g., state and local government, school districts, public libraries, public hospitals, institutions of higher education, courts, etc.)	☑	☑
Governed by statute and executive order	☑	☑
Outdated ATM and Frame Relay technologies	☑	
Modern Multi Protocol Label Switching (MPLS) and Ethernet technologies		☑
Limited to specific technology commodities	☑	
Focus on service delivery, sustainability, capacity, and performance		☑
Ability to leverage new and emerging technologies		☑
All sub-contracts managed by single vendor		☑

In a similar vein, OIT recently completed a full upgrade of the Capitol Complex, which enabled a new MPLS (Multiple Protocol Label Switching) Core and increased network bandwidth and redundancy for state office buildings in the Capitol Complex area. Further, this year OIT installed a Wi-Fi network at the state capitol building, providing convenient, high speed wireless connectivity to government employees as well as visiting guests.

Consolidation Projects

It is widely recognized that the consolidation and centralization of IT services are essential drivers that provide:

- Cost Savings – economies of scale, reduction of complexities, and standardization
- Business Enablement – efficiencies, savings, and collaboration through shared common business practices
- Greater Utilization of Scarce Resources – pooled resources, capabilities, and skills that are available for use across the enterprise

OIT has made great strides toward overcoming the issues and obstacles that resulted from the previous decentralized technology environment, including (but not limited to) developing a single, statewide IT strategic plan, establishing a governance structure for major IT projects, implementing a comprehensive controls program to ensure that IT budgets are spent in the most efficient and effective manner, and transferring all IT-related employees from the agencies to OIT. Indeed, IT consolidation has resulted in cost savings and cost avoidance of more than $31 million between fiscal years 2010 and 2012, including more than $14 million from renegotiating and consolidating IT contracts (see below).

Governor's Office of Information Technology Cost Savings and Cost Avoidance			
	FY10 Actual	FY11 Actual	FY12 Actual
Personal Services Reductions	2,013,000	7,550,000	7,550,000
Telecomm Contract Re-negotiation	800,000	1,200,000	1,990,000
Verizon Wireless Cell Phone Consolidation	620,000	700,000	924,989
Maintenance Contract Consolidation/Re-negotiation	232,000	942,667	2,601,522
Decommisioned Software/Hardware	130,000	30,000	693,753
Data Center Consolidation		136,998	206,998
Software Migrations	-	-	143,000
Consolidated Procurements		2,900,000	
Total	3,795,000	13,459,665	14,110,262

Equally significant is the long-term effect consolidation has had on delivering government services to all Coloradans. The importance of information technology will only increase in the years to come; the use of social media and mobile devices continues to grow exponentially and Coloradans will expect state services to be delivered through these technologies. However, in order to support these delivery mechanisms there must be a unified and sustainable IT infrastructure and service delivery model in place.

Email Consolidation to the Cloud

Due to the historical nature of providing IT services and systems in a siloed and disparate fashion, premise-based email solutions of varying types and age are deployed across 17 Executive Branch agencies and approximately 26,000 licensed users. OIT explored whether a cloud solution made sense for Colorado through a combination of research, discussions with a number of other states, IT-related associations, vendors and the private sector and participating in "deep dive" technical sessions with major providers. OIT also engaged an outside, neutral third party to conduct a comparative analysis that included an objective review of the state's current operational capabilities and requirements.

As a result of this in-depth evaluation, in March 2012 OIT announced it would contract with the Statewide Internet Portal Authority (SIPA) to use Google Applications for Government (GAFG), which includes email, calendaring, and other collaboration services. The migration from the legacy email systems was completed in three phases, with the first phase completed in July 2012 and the last in October 2012. The migration from 15 different email platforms will provide shared email services for nearly 26,000 state employees. For the very first time, state employees, regardless of their agency or work location, will be able to easily connect, collaborate, create, and share.

Data Center Consolidation

An entity the size of the State of Colorado should not need more than two or three data centers maximum, yet a 2007 study found 38 data centers were being managed by 23 state departments and that three locations housed more than one data center within a single building. (Two additional data centers were identified after the study, bringing the total to 40.) Some were no more than storage closets, and many were without adequate security,

fire protection, cooling and back-up power. Poorly equipped data centers put expensive servers and other assets at risk, as well as the businesses they support. OIT has focused on the activities that will reduce the state's data center footprint and result in significant cost savings, operational efficiencies, reduced energy consumption, and stronger information security. OIT has made steady progress in its plan to migrate to primary two data centers. In 2011 alone, OIT migrated and terminated five data centers and decommissioned 236 servers[8] through consolidation, virtualization, and migration to cloud-based solutions. More than 4,600 square feet of space has been recovered to date and this space can now be repurposed. These efforts have already saved Colorado over $800,000 in annual operating costs. Related to this project, OIT has implemented vBlock, which is an internal private cloud infrastructure platform, which will support future data center consolidation and centralization.

Service Desk Consolidation

Prior to July 2008, all Executive Branch departments implemented, procured, and managed disparate service desk solutions and OIT has been working towards achieving a centralized point of service delivery. In fiscal year 2011-12, OIT developed a service desk consolidation strategy to transform its service desk capability significantly. OIT has developed a common standard that maximizes the state's existing financial resources, standardizes reporting, streamlines support processes and timelines, and allows for the measurement of meaningful metrics such as mean time to repair, which can be used to improve service delivery.

As part of this initiative OIT also implemented a self-service feature that allows the end user customers the opportunity to enter, view, and update their own service tickets. In addition, there is a knowledge base capability that guides users to accurate, timely and consistent information that allows them to resolve some simple common issues themselves. This service is currently available to all customers except the Department of Corrections where we expect to make it available before the end of the calendar year.

Contract Consolidation

Historically each Executive Branch agency has entered into its own contracts for IT services, support and maintenance, often times at different price points. OIT is proactively pursuing the consolidation and renegotiation of these contracts consistent with statutory authority. As a result, OIT is already generating nearly $14.2 million in cost savings and cost avoidance over a four-year period from renegotiating and consolidating IT contracts, cell phone consolidation, and data center consolidation efforts.

[8] The state owns approximately 1,800 servers of varying ages and operating systems.

Section IV: Operations Financial Review

OIT's financial services team oversees all financial activities of OIT and all IT-related financial activities for the Executive Branch. It also develops and administers the OIT Controls Program, which includes IT planning, budgetary controls, grants management, procurement, contracting, accounting, auditing, and reporting. Specific duties also include:

- IT Storefront management and administration
- Management of enterprise budget, accounting, procurement, and contracting processes
- Capital investment planning, financial modeling, and cost reduction/containment activities
- Refinement of financial controls program to maximize IT spend across the state
- Consolidation of enterprise-level contracts and procurements
- Financial analysis and trending related to return on investment and total cost of ownership

Cost Savings and Cost Avoidance

Consolidation and implementing newer technologies has afforded OIT the opportunity to attain substantial cost savings through such activities as renegotiating and/or consolidating contracts, consolidating and/or decommissioning hardware and software, and moving to cloud-based services, etc. Through these deliberate actions, OIT achieved nearly $3.3 million in cost savings and avoidance in FY 2011-12. Additionally, local governments were able to save $260,000 by utilizing state contracts established by OIT.

Appropriation Structure

OIT delivers information and communication technology services, support and infrastructure to state, federal and local government entities among others. OIT operates solely as an internal service organization, is almost 100% funded via re-appropriated funds, and bills 100% of its costs and activities to users in accordance with federal and state governmental accounting standards and guidelines. OIT recalculates its services rates on an annual basis and bills it services to departments on a cost reimbursement basis. OIT is not a profit center.

Federal Oversight

The billing methodology of OIT is audited every year by the US Department of Health and Human Services, Division of Cost Allocation (DCA) to ensure that our rate setting methods are sound, that OIT is billing each department in accordance with set rates, and that federal funds are not being used to subsidize state general or cash funded programs. DCA tests both transactions and internal controls to ensure that no cross-subsidization is occurring at either the service or departmental level. OIT is proud of the fact that we have had no major findings from this annual federal review for past 10 years.

IT Spend in Fiscal Year 2011-12

The total IT spend across Executive Branch departments has averaged nearly $300 million in each of the past five fiscal years. These expenditures include costs that departments dedicate annually to OIT services (e.g., data center, network connectivity, long distance, etc.) as well as additional and significant costs associated with hardware, software (including lease costs, purchases, maintenance, support and licensing), and IT professional services. FY 2011-12 IT spend by department is summarized in the table below.

Information Technology Expenditures
Fiscal Year 2011-12

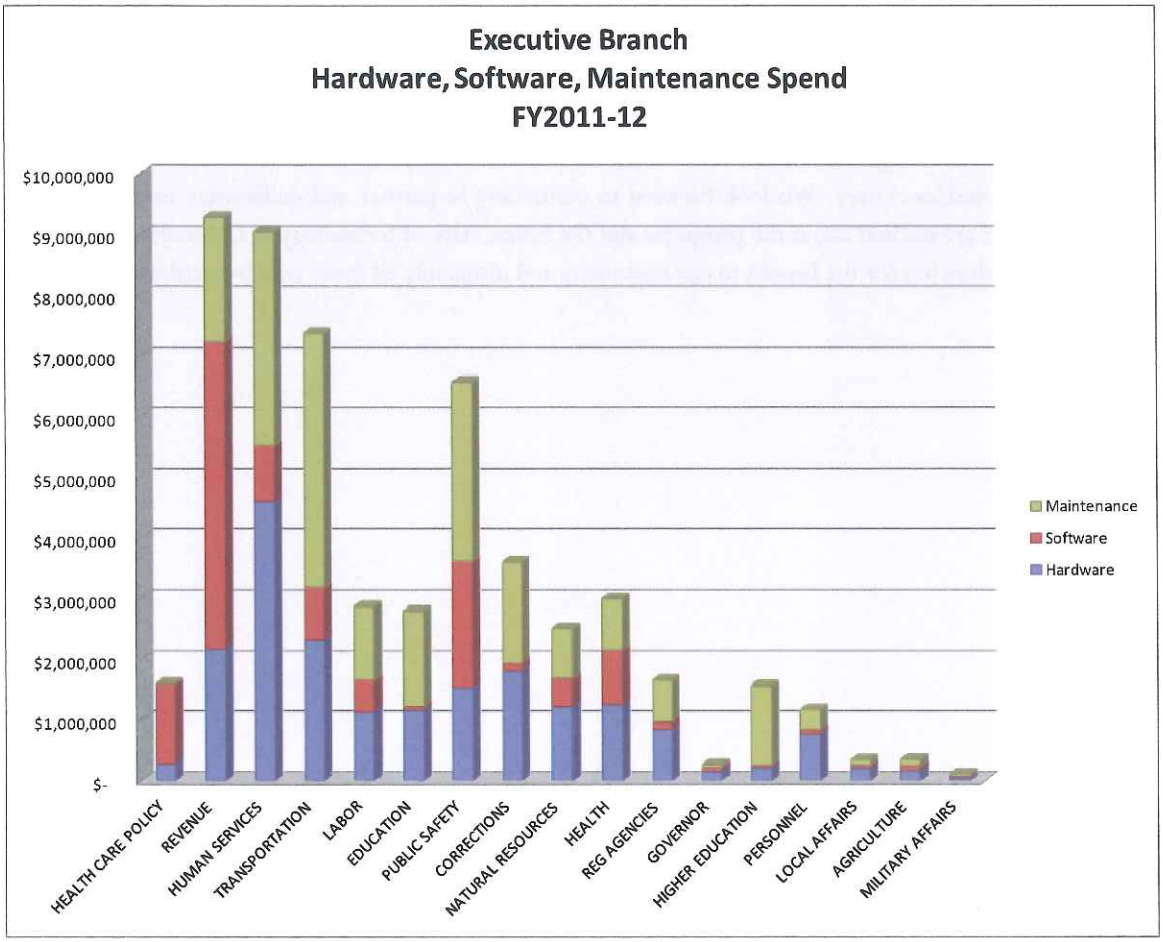
DEPARTMENT	OIT Personal Services	Contracted Professional Services	Operating*	Total Spend
HUMAN SERVICES		$ 12,468,930	$ 56,381,384	$ 68,850,314
REVENUE		$ 11,950,031	$ 26,197,003	$ 38,147,034
HEALTH CARE POLICY		$ 33,689,879	$ 3,762,756	$ 37,452,635
TRANSPORTATION		$ 5,195,772	$ 19,350,207	$ 24,545,979
LABOR		$ 4,264,828	$ 15,220,097	$ 19,484,925
NATURAL RESOURCES		$ 1,901,615	$ 13,004,398	$ 14,906,013
CORRECTIONS		$ 76,540	$ 14,852,097	$ 14,928,637
PUBLIC SAFETY		$ 514,620	$ 13,383,889	$ 13,898,510
HEALTH		$ 1,898,341	$ 9,557,529	$ 11,455,871
EDUCATION		$ 3,750,616	$ 3,434,823	$ 7,185,439
REG AGENCIES		$ 2,157,935	$ 4,102,465	$ 6,260,400
PERSONNEL		$ 970,137	$ 4,431,187	$ 5,401,324
GOVERNOR		$ 2,238,996	$ 704,370	$ 2,943,366
HIGHER EDUCATION		$ 842,344	$ 2,091,020	$ 2,933,364
LOCAL AFFAIRS		$ 51,664	$ 1,774,190	$ 1,825,854
AGRICULTURE		$ 10,271	$ 1,508,688	$ 1,518,958
MILITARY AFFAIRS		$ 7,207	$ 467,924	$ 475,131
TOTALS FY 2011-12	$ -	$ 81,989,728	$ 190,224,027	$ 272,213,755
OFFICE OF INFORMATION TECHNOLOGY**	$ 74,368,758	$ 18,075,094	$ 30,732,070	$ 123,175,922

**Operating includes billings to departments for OIT staff, OIT common policy charges & Capital Construction expenditures*

*** OIT funding is re-appropriated and user charges are included in department operating*

Information Technology Budget

The bar graph below identifies the distribution of ~$55 million in FY 2011-12 hardware, software and maintenance expenditures by department.



Information Technology Financial Reform

OIT will be engaging in an effort to reform the agency IT budgets and to develop a sustainable and effective IT financial framework that will replace the current, reactive "break/fix" model and enable us to be more proactive and strategic in how we plan, prioritize, and invest in IT spending. OIT will be partnering with the Office of State Planning and Budgeting (OSPB) and state agencies on this "IT Innovation Effort" (I2E) to address this issue during the upcoming legislative session. As soon as a draft plan has been formulated we will engage JBC for their input. Some of the goals of IT Financial Reform include developing a better, more proactive way to budget and plan for IT resources; allowing budget flexibility to address unforeseen IT needs during the fiscal year; and establishing more strategic, consolidated procurement of IT goods and services.

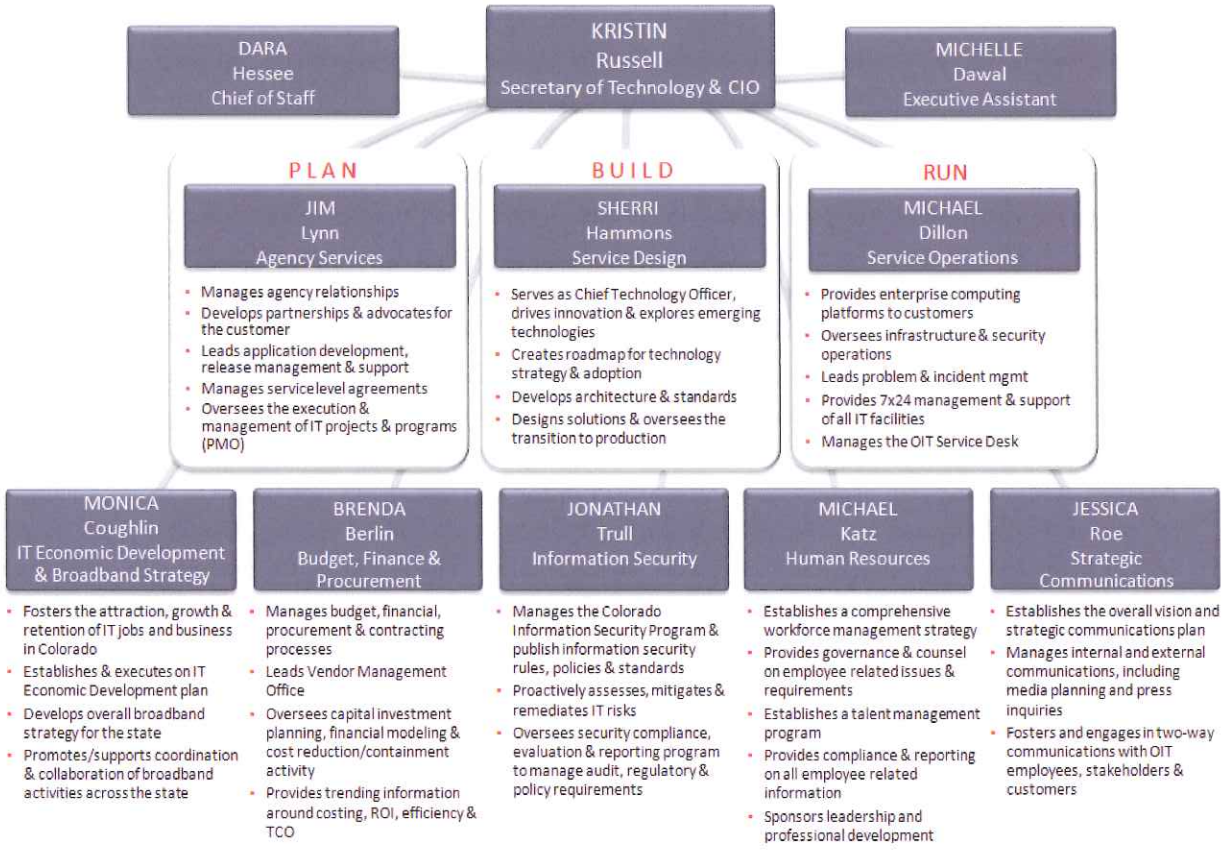
Summary

Over the past year, OIT's enterprise approach to the delivery of information technology has produced tangible and significant operational and financial benefits; however, there is still much work to do. As a result, OIT is actively and aggressively engaged in activities that will help the state reach the collective goal of becoming more effective, efficient and elegant. The FY12 OIT Playbook[9] and the OIT Balanced Scorecard were critical to achieving those goals and in advancing our role as a trusted IT consultant and not just a service provider. OIT is committed to researching and implementing new technologies and innovative solutions where it makes sense to do so and shoring up existing technologies as needed/necessary. We look forward to continuing to partner and collaborate to uncover the most innovative ideas and are excited about the prospects and the future state of technology in Colorado state government – not only for ourselves but for the benefit to our customers and ultimately all those who live and work in Colorado.

[9] The FY13 OIT Playbook was published in July 2012 and is accessible on OIT's website www.colorado.gov/oit.

Appendix A – OIT Functional Framework

Office of Information Technology



Appendix B - Awards and Recognition

- The **Colorado Statewide Interoperability Training Program** was selected as a **Laureate in the Safety and Security Category in the 2012 Computerworld Honors Program**. The annual award program honors visionary applications of information technology promoting positive social, economic and educational change. Multiple studies and post-incident reports from across the country have indicated that improper use and lack of training on radio-related communications systems have led to delayed response to citizens, and injury or fatalities for responders who are providing essential services, property protection and lifesaving activities. The Colorado Statewide Interoperability Training Program was implemented by the Governor's Office of Information Technology (OIT) in May 2011 to provide free instruction to Colorado's public safety professionals and first responders on how to operate complex radio equipment to most effectively communicate across public safety agencies. It began with a series of 37 "train the trainer" classes, which included a web-based delivery option, and OIT is developing additional agency-focused modules to address equipment specific to regional and local governments.
- The **Colorado Program Eligibility and Application Kit (PEAK)** was selected as a **Laureate and finalist in the Collaboration category in the 2012 Computerworld Honors Program**. The annual award program honors visionary applications of information technology promoting positive social, economic and educational change. PEAK was developed in a collaborative effort between state agencies, counties, community-based organizations and is a 24/7 online tool that allows Coloradans to screen themselves for potential eligibility and apply for public assistance benefits. It also allows existing clients to check on their benefit status and report changes to their public assistance data. Prior to PEAK, Coloradans were required to apply in person, during normal business hours, at one of 64 county offices or 150+ medical assistance (MA) sites. The citizens of Colorado needed better access and more options for determining their potential eligibility. PEAK empowers citizens to initiate the process from an environment and time of their choosing and is just one step in our journey to make the delivery of government services more effective, efficient and elegant.
- **PEAK** was named a winner of the **Digital Government Achievement Awards** (in the Government-to-Citizen state government category). This national award from e.Republic's Center for Digital Government recognizes and highlights outstanding applications that are enabling government to operate more efficiently.
- The Center for Digital Government honored **Colorado** as the winner of its first annual **Cybersecurity Leadership and Innovation Award**. We were recognized for continually raising our own game in response to these threats and becoming a best practice leader by educating employees, employing processes, and utilizing technology to keep the confidential information of Coloradans secure.
- Colorado's Secretary of Technology and Chief Information Officer, **Kristin D. Russell** was named one of **Computerworld's 2012 100 Premier IT Leaders**. This award honors business and technology leaders from both private and public sectors for their exceptional technology leadership, innovative solutions to business challenges and effective management of IT strategies. Ms. Russell was selected for her bold approach to transforming the status quo and changing the way IT services are delivered in the State of Colorado.
- Information Week named **Kristin D. Russell** to the **Government CIO 50** list. This list recognizes the 50 most influential public sector CIOs for their vision, clout and ability to deliver tangible and measureable results.
- **Kristin D. Russell** was a recipient of the prestigious **Top 10 Breakaway Leader Award** by Global CIO Executive Summit. The peer-nominated award recognizes CIOs from around the world for their leadership in elevating their people, partners and business.

- IDG's CIO magazine awarded the **Colorado Information Marketplace (CIM)** as a **2012 CIO 100**. The CIO 100 award recognizes the innovative use of technology to deliver business value. Read more about CIM in this Report.
- The Colorado Oil and Gas Commission's **eFORM** program was selected as one of eight national winners of **The Council of State Governments' Innovation Awards**. The award recognizes Colorado for making smart use of technology to deliver services more efficiently and affordably and for helping reduce the average time it takes to get a permit for drilling a well. eFORM was also a finalist in the 2011 Western Region of Council of State Governments' Innovation in State Government Awards.

Appendix C - Public Private Partnerships

We have a number of exciting initiatives underway that demonstrate our commitment to consolidating functions, entering into partnerships, and reducing costs wherever possible.

Chief Technology Officer (CTO) Advisory Council

For OIT to be successful, it is imperative we continue to innovate and improve our service serves several important functions. To tackle that challenge, the CTO Advisory Council was formed with members from the public and private sectors to provide us with greater insight into how the private sector may help improve how technology is used in the public sector. The Council makes recommendations on frameworks, technologies, architectures, and applications that may be of benefit to the state's enterprise architecture. Agreed upon recommendations are then submitted to the Secretary of Technology and State Chief Information Officer for adoption. Through the Council, we are also discovering new collaboration opportunities between the two sectors that offer advantages that neither sector can enjoy on their own.

Colorado Broadband Knights of the Roundtable

The Colorado Broadband Knights of the Roundtable meets monthly and continues to be a successful forum to convene thought leaders on the topic of broadband deployment across Colorado. In January, a half-day strategy session was held in which they developed an overall framework/outline for the state's broadband plan, along with the vision and mission statements for the plan and the five priorities. Since then, this team has fleshed out the plan and has identified specific goals for each of the priorities. Additionally, OIT has organized a statewide broadband taskforce to guide the implementation of a $1+ million grant for improving statewide capability for the use of interactive video for educational applications. The purpose of the project is to expand distance learning activity to all Board of Cooperative Educational Services (BOCES)-served areas of the state and to coordinate resource sharing and collaboration among these sites, as well as connect them to content providers such as higher education campuses, museums, and other Colorado resources.

Colorado Connected Communities Initiative (CCCI)

The Colorado Connected Communities Initiative (CCCI) was established in March 2010 through a Memorandum of Understanding (MOU) between the State of Colorado and Cisco. CCCI consists of scalable pilot programs in the areas of health care, energy, and education that are designed to foster economic development and sustainable practices throughout the state. Distance learning for nurse recertification was enabled in the fall of 2010; the associated distance learning project was nominated for a 2011 NASCIO Recognition Award.

Colorado Innovation Network (COIN)

In November 2011, Governor Hickenlooper announced the Colorado Innovation Network (COIN), a public-private partnership created to help spur and cultivate innovation within Colorado by connecting leaders, entrepreneurs and inventors from industry, nonprofits, government and academia. Key drivers and inhibitors of innovation will be studied and Coloradans' ideas and insights gathered on how to improve our climate for innovation. In her role as Secretary of Technology, Kristin D. Russell was selected to Chair the Board of Advisors for this ground-breaking partnership. On August 29 & 30, COIN hosted the inaugural Innovation Summit, which brought together the most innovative and action-oriented leaders in the Colorado community and from around the globe to help elevate the state's innovation climate. Governor Hickenlooper, Denver Mayor Michael Hancock, The Coca-Cola Company CEO Muhtar Kent, and Bestselling Author Geoff Smart were among the list of speakers at this exciting and well-received event.

Colorado Public Private Partnership Innovation Council

In February 2012, OIT launched an initiative to create a working process model that engages the private sector with projects arising out of OIT's Playbook. Through a pro bono contribution of their skills and resources, participants will work on a small team of senior architects, project managers and domain experts in the areas of networks, security, data centers, software applications and cloud infrastructure to inventory the infrastructure and develop recommendations for consolidation, modernization and improvement.

With a concentration on cloud technologies and Colorado job creation, their goals include identifying financing models that can be used in government settings, stratifying the current list of 850 state applications into cloud/non-cloud candidates, and identifying strategies to move the Data Center Consolidation project forward at a faster pace. The Council has begun drafting and expects to issue multiple Requests for Proposals (RFP) before the end of the fiscal year which will optimize the aforementioned strategies. The Council is operating in a transparent fashion to ensure state purchasing rules and regulations are adhered to while still maximizing the benefit of private sector support.

Colorado Information Security Advisory Board

The CISO has formed the Colorado Information Security Advisory Board. The Board's mandate is to determine a cost-effective and direct method of implementing the Twenty Critical Controls[10] on the systems and networks owned and managed by the State of Colorado, its agencies and public universities, and local governments in Colorado, provide a step by step plan for implementing the highest priority controls, and will provide a plan for continuous monitoring and scoring status of security on those systems. The Twenty Critical Controls have been proven to significantly reduce the risk of a system compromise and are intended to detect and prevent the newest and most sophisticated cyber attacks. The board's written plan will be the guiding framework for improving Colorado's information security posture over the next several years.

IT Economic Development Advisory Council

The IT Economic Development Advisory Council is a group of senior IT business leaders who act as trusted advisors providing feedback on proposed economic development strategies, IT ideas and initiatives and brainstorming job creation solutions. They support activities associated with the technology & information business development pipeline as well as IT economic development trips to other states to meet with IT business leaders to assess how Colorado could be more attractive for these businesses and encourage them to consider Colorado when they have opportunities for growth and expansion. They also help lead targeted business development initiatives and projects.

Technology Key Industry Network

In conjunction with OEDIT, OIT assembled a Technology Key Industry Network (KIN) Steering Committee and Tactical Team with representation from the technology industry, academia, state and federal government, nonprofit associations and others to develop a business plan for the technology industry in Colorado. The kickoffs of the Technology KIN Steering Committee and Tactical Team were held on February 7 and 8, 2012, respectively; participants included 15 C-Level Leaders from the technology industry as well as members from the IT Economic Development Advisory Council, OIT, OEDIT and the Colorado Technology Association (CTA). This group addressed the major challenges and opportunities facing technology as an industry in Colorado, with a special focus on the six core objectives from the Colorado Blueprint. They identified specific initiatives for each of the six areas. CTA is now developing leadership teams to carry out the implementation of those initiatives.

[10] The Twenty Critical Controls were developed by a powerful consortium of leaders from the National Security Agency (NSA), the Department of Defense Cyber Crime Center and top commercial forensic experts.

WyCAN

Colorado is leading the four state WyCAN consortium to modernize the state's aging unemployment insurance legacy system. This consortium consists of the Unemployment Insurance (UI) programs of the states of Wyoming, Colorado, Arizona, and North Dakota. The consortium is approaching Unemployment Insurance in a revolutionary manner through the pursuit of a cloud-based solution that will combine multiple systems into a UI Tax and Benefits system that is extensible and configurable, and will be cost-effective for development, operations, and support. In January 2012, the consortium released a Request for Information (RFI) to gather information from the private sector around innovative Software as a Service (SaaS) model for government. In late summer 2012, the consortium released an RFP to secure a vendor who can provide progressive approaches to operations and support, including the potential of public/private partnerships and innovative approaches to intellectual property ownership, royalties, reuse of interoperable components, etc. A selection will be made in early 2013.

Appendix D – Additional Accomplishments

OIT provides and manages the systems that our customers – state agencies – use to deliver services to Coloradans. The following is a sample of the many projects in which the OIT team participated in the past 18 months to create or improve those systems.

Business & Labor

- In October 2011, OIT's team supporting the Colorado Department of Labor & Employment (CDLE) in conjunction with the Statewide Internet Portal Authority completed the **Business Express** project that allows for a one-stop registration and compliance function for new businesses. Business owners can now file through Business Express allowing completion of Secretary of State, Unemployment Insurance, and Revenue forms electronically and efficiently. Currently 30% of all business filings are completed through Business Express.
- The **Internet Self Service Project**, developed by the OIT team at CDLE, launched MYUI Claimant and SmartFile in October 2011, allowing those applying for Unemployment Benefits, to file claims online.
- **E-Filings** is a web-based tool that has dramatically changed the Public Utilities Commission business model by significantly streamlining and automating processes. This system benefits citizens and state employees alike. Registered users from the public utilities industry (e.g., intrastate telecommunications services and electric, gas and water) can securely submit and serve their filing in electronic format to the Public Utilities Commission (PUC), elect to receive automated notices, and take advantage of other features of the system. Although using the system is voluntary, 85 percent of filings were submitted in the first year after implementation in April 2010. The electronic routing of documents has simplified case load management for PUC staff and reduced paper, postage, and physical storage costs since all documents are stored and available electronically. The general public can easily search PUC records for docketed proceedings, thus making government more transparent to citizens.
- OIT employees supporting the Department of Regulatory Agencies implemented **eLicense**, an online licensing renewal system, in July 2012 providing these licensed professionals (all licensed professions except educators and lawyers) with an electronic method for efficiently managing the renewal process, including processing licensing renewal fees. Credentials for professionals other than educators and attorneys are achieved with the professional license renewal system. This system averages over 150,000 transactions annually.

Corrections

- Thanks to OIT staff supporting the Department of Corrections (DOC), the parole process is now fully electronic and will no longer require the scanning and e-mailing of documents. Paper notices have been eliminated, and the **Parole Board Application Hearing Automation Project** is now complete.
- Computers were installed in every cell in the newly built Centennial Correction Facility in Canon City. The **Computers in Cells project** allow inmates to video chat with family from visiting center locations in Denver and Canon City as well as with the prison warden. This has increased the safety of prison staff and reduced time and travel costs for inmates' families. This installation is believed to be the first of the kind in the nation.
- OIT staff designed, developed and implemented a web-based **Offender Portal application** that pulls together a significant amount of information regarding the offender, crimes, sentences, programs, work assignments, parole plans, and progress assessments into a single snapshot for use by DOC staff.

Greening Government

- In 2011, OIT partnered with the Colorado Energy Office to implement the **Big Fix** statewide. The Big Fix is power management software that was purchased by the Governor's Energy Office and OIT is in charge of installing the 11,000 subscriptions. Currently about 9,000 have been installed. It is estimated that when all subscriptions are installed and turned on, Colorado will see a significant KWh reduction of approximately 2.1 million.
- OIT has partnered with the Colorado Departments of Personnel & Administration and Public Health & Environment to take the paper out of employee paychecks. The **Paperless Pay Advices** initiative, which went live in November 2011, is expected to save the state more than $60,000 in paper, printing, and postage annually. In addition to cost savings, it is saving natural resources and countless hours of staff time that were previously spent distributing paper pay advices.

Health and Human Services

- The second phase of the award winning **Program Eligibility and Application Kit (PEAK)** website was successfully launched in May 2011. PEAK allows Coloradans to screen themselves and apply for Medicaid, Food Assistance, Colorado Works, Adult Financial Assistance, and the Children's Basic Health Plan from a home computer, library, kiosk or anywhere the internet can be accessed. PEAK enables individuals to conveniently access a full suite of services right at the touch of a mouse, including the ability to anonymously screen for program eligibility, apply for benefits, check the status of benefits, and update case information, including address changes and contacts. Since the launch of both phases of PEAK, 202,326 accounts have been created, 154,821 screenings have been completed in total, 67,338 applications submitted, and 14,319 change reports have been submitted. This has saved approximately $1M in operational costs while reducing application enrollment times by over 30%.
- The implementation of the **Child Care Automated Tracking System (CHATS)** was completed in April 2011, replacing a 17-year-old mainframe legacy system. CHATS is a fully-integrated web-based system that automates the core business functions of the Colorado Child Care Assistance Program. The system supports the delivery of child care assistance to low income families and families receiving public assistance through other Human Services programs; allows more accurate documentation of attendance through point of service swiping devices; and provides for payment for childcare services in a timelier fashion than the old system. On an annual basis, CHATS supports the delivery of child care benefits to approximately 22,000 families and 38,000 children; makes roughly $70 million per year in payments to approximately 3,500 providers; and is used by approximately 1,000 county and state staff.
- OIT also implemented a self-service model for the **Colorado Child Care Assistance Program (CCAP)** by providing a web portal for the Childcare Automated Tracking System (CHATS) that allows parents an ability to apply to CCAP as well as an ability to renew benefits and request county hearings.
- **Colorado AWARE**, a multi-year project to replace three disjointed and aging legacy systems (one was more than 25 years old) for the Division of Vocational Rehabilitation (DVR) was implemented in May 2011. Project goals were to improve the efficiency of the service delivery system; improve customer outcomes; and improve organizational accountability. Colorado AWARE gives DVR counselors and management a tool to provide more responsive care to the more than 6,800 clients they serve annually and thereby helps employer partners find candidates who are skilled, loyal, and committed to success. Colorado is the 24th state to implement the AWARE VR product.

Infrastructure & Shared Services

- OIT's team supporting the Department of Military and Veterans Affairs (DMVA) continues to strengthen infrastructure resilience and customer support. We have completely **virtualized the DMVA infrastructure** (i.e., all of the back office servers and applications). Benefits include the ability to deploy, test, and validate new application servers in a controlled environment prior to production. Additionally, in the event of a crash, a new application server can be deployed in minutes rather than having to build a new physical server and we have the ability to recovery nearly all data on the fly.
- Phase I of the **Agriculture Licensing and Inspection System (ALIS)** project was completed in June 2011. ALIS consolidated the multiple stove piped licensing/registration systems into a single application as well as the development of corresponding inspection programs for the integrated licensing programs. This resulted in decreasing the number of separate custom applications that need to be supported by IT, standardizing processes and policies related to licensing/registration and inspections, reducing the amount of paper/printing/postage that needs to be generated, and setting the framework for a consolidated licensing office in the Colorado Department of Agriculture.
- OIT participated in a combined four state (OR, UT, MT, and CO) RFI through the Western States Contracting Alliance to evaluate the feasibility of supporting **Geographic Information Systems** (GIS) through cloud based services. OIT also held discussions with the City and County of Denver on testing the feasibility of sharing GIS services on cloud based infrastructure. OIT is moving ahead on cloud hosting of public web maps for the state, which will also provide a test bed platform for these shared services.
- A **Virtual Tape System** (VTS) was implemented in July 2011 to support the mainframe and replace the existing tape management operations at the state's data center. In some instances, VTS has reduced processing time by nearly 50%. In addition, by removing the tape devices, we recovered 480 square feet of space; space which can be used for servers we move into the data center as part of our consolidation initiative.

Public Safety

- OIT completed the full statewide deployment of the mission critical Colorado Crime Information System (CCIS) in June 2010 that is integrated into the primary Justice System. Building on these award-winning systems, OIT recently launched the **Automated Fingerprint Information System (AFIS)**, which will be used by the Colorado Bureau of Investigation to support criminal fingerprint identification, applicant and licensee background checks, and processing of latent fingerprints from crime scenes in support of criminal investigations. Colorado is currently 20% through a $6.7million implementation, which is expected to go into production in early 2013.
- In 2011 OIT launched a new public safety communications training program designed specifically for law enforcement and other first responders – like fire, medical, general government, transportation, utilities, public health, and school officials. During incidents such as terrorist attacks, natural disasters, and high-speed police chases, multiple agencies engaged in the response require real-time coordination and communications interoperability. The **Colorado Interoperability Training Program** provides one-of-a-kind instruction on how to communicate effectively across these public safety agencies and how to operate complex portable and console radio equipment. Nearly 600 people have completed the course, including 30 students from 16 states/territories outside of Colorado.
- In conjunction with local government, OIT continues to expand the coverage of our **Public Safety Communications Network** – also called the Digital Trunked Radio System (DTRS), which provides communication interoperability to first responders across federal, state, and local jurisdictions during natural disasters and other emergencies. Colorado is a leader in this area and more than 95% of state roadways are

covered by the system. It currently consists of 208 active radio sites providing mobile radio coverage to approximately 95% of the state highways. This system averaged over 9,000 hours of monthly talk time and handled over 91 million calls in 2011. Under OIT, the PSCN continues to implement additional infrastructure statewide as described in the initial plan. DTRS has received funding through the "Public Safety Trust Fund" created by HB98-1068 and more recently through Homeland Security, Colorado Wireless Interoperability Network (CWIN), Energy and Mineral Impact, Public Safety Interoperable Communications (PSIC), and other federal grants. State-directed and federal funding allocations for interoperable communications totaled nearly $220 million between 1999 and 2009. Colorado passed legislation in 2012 to establish a DTRS Authority to analyze and report on future needs of this critical system. The system provided extensive event communications support for the recent USA Pro Cycling Challenge race across Colorado, ensuring that first responders had effective interoperable radio capability throughout the course.

Revenue, Licensing and Registrations

- OIT completed the $64 million investment in the **Colorado Integrated Tax Architecture (CITA)** project which has streamlined and improved tax collection and reduced the administration of managing collections and replaced a 40-year-old legacy system. CITA provides comprehensive integrated tax architecture with a modern and robust technology to support and carry out the Colorado Department of Revenue (DOR) business functions. The project consolidated multiple, antiquated, disparate tax processing systems into a single, contemporary, integrated, taxpayer account-centric system that incorporates business best practices for state tax administration.
- The **Colorado State Title and Registration System (CSTARS)** is used by both DOR and 64 County Clerk authorized agents. There are 106 county offices located throughout the state that title and register motor vehicles. The system process approximately 11 million transactions and collects over $1 billion of revenue annually. In the past two years, OIT has made significant upgrades to the infrastructure to improve transactional performance.
- Colorado has nearly completed a modernization of 42 of 56 driver's license offices. This modernization provides new equipment designed to store the ever-increasing amount of information. This new functionality includes software for **Facial Recognition, Document Authentication, and Gated Issuance**.
- OIT completed the **Online Vehicle Registration Renewal (OVRR)** project in 2011 that allows Colorado citizens to renew their license plates online through the portal vendor. Currently about half the counties in the state are online with this process.
- OIT and SIPA recently implemented a new **Salesforce application** for the Office of Economic Development and International Trade to allow non-profit entities to identify and apply for creative industry grants. This same workflow functionality allows the state to be more effective in managing required audits. Currently all audits are logged and tracked using a Salesforce application.

Security

- OIT's Office of Information Security (OIS) implemented the **Colorado Risk Incident Security Compliance (CRISC)** system which allows the CISO to identify systemic security and compliance issues across the state and to prioritize limited resources on remediation and improvement efforts.
- OIS also completed the first two phases of the **Enterprise Endpoint Security** project by converting over 28,000 endpoints in the Executive Branch to single, standard software that resulted in an approximate savings of $500,000 in licensing costs alone. The project connected endpoints from 20 separate agency

infrastructures to a central management server, resulting in improved, centralized monitoring and management of security-related assets by a smaller central team.

- The Office of Information Security partnered with the Cyber Security Education Consortium (CSEC) to provide **accelerated training workshops** in both Information Assurance and Computer Forensics.

Transportation

- As part of a strategy to improve operations while reducing overhead, **CDOT's Maintenance Training Academy (MTA)** moved to electronic tablets to create a paperless curriculum in 2012, saving an estimated $20,000 annually.
- The new **Public Budget Formulation (PBF)** module in the Colorado Department of Transportation's (CDOT) SAP system was completed which includes the migration of 10 existing applications from old SAP functionality to PBF and creation of one new application in PBF.
- OIT's team supporting the Colorado Department of Transportation (CDOT) is 70% through the first phase of a $1.3 million installation of the new **Public Sector Supplier (PSS)** module within SAP to provide system improvements in managing vendor relationships, contracts, and the procurement process. This includes implementation of self-service contracts, sourcing and P-cards, and sourcing automation as well as a new vendor portal and online bidding. In addition, it will improve access to historical bid information as it is crucial in producing accurate and timely cost estimates for CDOT construction projects.

Appendix E - 2012 Legislative Agenda

OIT has continued to work closely with the Colorado General Assembly to advance its value proposition of enabling the effective, efficient and elegant delivery of government services through trusted partnerships and technology. Key legislation passed during the 2012 legislative session include:

Bill Number	Short Title	Sponsors	Legislative Achievement
HB12-1224	Creation of a Consolidated Communications System	Becker / Lambert	This bill creates a Consolidated Communications Systems Authority to represent all of the members in matters concerning network growth, maintenance, upgrade, operation, technology, rules, spectrum allocations, and radio frequency licensing of the Digital Trunked Radio System (DTRS). The CCSA is to advise the Governor and General Assembly through an annual report on the development, maintenance, upgrade, and operation of the system. It is an important first step toward creating a sustainable funding model for the system.
HB12-1288	Administration of IT Projects in State Government	Murray / Bacon	This bipartisan bill ensures that sustainability is built into IT project budgets and plans by including things such as security, project management, business continuity, disaster recovery, and ongoing support and ensures that each state agency takes a "total cost of ownership" approach to the future IT budget requests. Additionally, the bill specifically allows agencies the option to utilize OIT for major IT project-related work that uses capital construction funds.
HB12-1335	2012-13 Long Appropriations Bill	Gerou / Hodge	The Long Bill included funding for several important IT modernization efforts critical to state government operations, including: $8.6 million to update the Colorado Financial Reporting System (COFRS), $1.9 million for data center consolidation, and $22.2 million to improve the

			Colorado Benefits Management System (CBMS).
HB12-1339	Colorado Benefits Management System Project	Becker / Lambert	This important bill appropriates money for CBMS and requires the CIO to provide quarterly reports about the CBMS modernization initiative. The funding will support approximately 75 projects related this effort.
SB12-096	Office of Information Technology Amend Contracts	Lambert / Levy	The bill extending OIT's ability to modify existing single agency IT contracts into enterprise statewide contracts that can be used by multiple agencies was passed and signed by the Governor. This additional two years will allow us to achieve even greater savings and get our arms around the multitude of contracts that could be utilized for enterprise purposes.

Appendix F – Glossary of Terms

Acronym	Description
ARRA	American Recovery and Reinvestment Act
AVMP	Agency Vulnerability Management Program
BOCES	Boards of Cooperative Educational Services
C.R.S.	Colorado Revised Statutes
CBI	Colorado Bureau of Investigations
CBMS	Colorado Benefits Management System
CDA	Colorado Department of Agriculture
CDHS	Colorado Department of Human Services
CDLE	Colorado Department of Labor & Employment
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Department of Public Safety
CEPaaS	Citizen Engagement Platform as a Service
CHS	Colorado Historical Society
CHSDA	Colorado Human Services Directors Association
CIM	Colorado Information Marketplace
CIO	Chief Information Officer
CISO	Chief Information Security Officer
CISP	Colorado Information Security Program
CMDB	Configuration Management Database
COFRS	Colorado Financial Reporting System
CSN	Colorado State Network
COFRS	Colorado Financial Reporting System
COIN	Colorado Innovation Network
C.R.S.	Colorado Revised Statutes
CTA	Colorado Technology Association
CTO	Chief Technology Officer
DCA	Division of Cost Allocation

Acronym	Description
DMVA	Colorado Department of Military & Veterans Affairs
DNA	Colorado Department of Natural Resources
DOC	Colorado Department of Corrections
DOLA	Colorado Department of Local Affairs
DOR	Colorado Department of Revenue
DORA	Colorado Department of Regulatory Agencies
DPA	Colorado Department of Personnel & Administration
DTRS	Digital Trunked Radio System
ELT	Executive Leadership Team
EPPMO	Enterprise Portfolio & Project Management Office
ESC	Executive Steering Committee
FTE	Full Time Equivalent
FY	Fiscal Year
GAFG	Google Apps for Government
GDAB	Government Data Advisory Board
GGCC	General Government Computer Center
GIS	Geographic Information Systems
HB	House Bill
HCPF	Colorado Department of Health Care Policy and Financing
ICT	Information and Communication Technology
IT	Information Technology
ITIL	Information Technology Infrastructure Library
JBC	Joint Budget Committee
K-12	Kindergarten to 12th Grade
KIN	Key Industry Network
MNT	Multi-Use Network
MOU	Memorandum of Understanding
MPLS	Multiprotocol Label Switching
MS-ISAC	Multi-State Information Sharing & Analysis Center

Acronym	Description
NASCIO	National Association of State Chief Information Officers
OEDIT	Office of Economic Development and International Trade
OIS	Office of Information Security
OIT	(Governor's) Office of Information Technology
OSC	Office of the State Controller
OSPB	Office of State Planning and Budgeting
RISE	Relevant Information to Strengthen Education
SB	Senate Bill
SIPA	Statewide Internet Portal Authority
SLDS	Statewide Longitudinal Data System

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